

**KERAWANAN LONGSOR BERDASARKAN KONDUKTIVITAS
HIDROLIK JENUH DI DESA GIRITENGAH KECAMATAN
BOROBUDUR KABUPATEN MAGELANG**

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ABSTRAK

Longsor merupakan gerakan massa tanah dan atau batuan yang bergerak menuruni lereng dengan volume yang relatif besar. Penelitian bertujuan untuk mengetahui karakteristik tanah dan kedalaman lapisan semi kedap serta pembentukan bidang gelincir penyebab longsor di Desa Giritengah. Penentuan titik sampel dilakukan secara purposive sampling berdasarkan daerah yang telah mengalami longsor di Dusun Onggosoro dan Dusun Ngaglik serta daerah yang belum mengalami longsor di Dusun Secang dan Dusun Mijil. Parameter yang dianalisis meliputi tekstur tanah, konduktivitas hidrolik jenuh, porositas, kemantapan agregat, dan bahan organik tanah. Hasil penelitian menunjukkan bahwa seluruh lokasi penelitian menunjukkan adanya indikasi lapisan semi kedap berupa akumulasi lempung. Uji korelasi Pearson antara letak kedalaman lapisan semi kedap dengan bidang gelincir menunjukkan hasil yang signifikan ($r = 0,944$). Analisis regresi linier antara kedalaman bidang gelincir dengan volume longsor menunjukkan nilai koefisien determinasi ($R^2 = 0,7102$). Hasil uji korelasi Pearson pada beberapa sifat fisik tanah menunjukkan hasil yang signifikan dengan nilai konduktivitas hidrolik jenuh ($r = -0,979$), batas cair ($r = 0,983$), dan tekstur ($r = 0,904$). Seluruh lokasi penelitian memiliki indikasi lapisan semi kedap dan beberapa sifat fisik tanah seperti konduktivitas hidrolik jenuh, batas cair, dan persebaran fraksi lempung dapat digunakan sebagai parameter dalam penentuan tingkat kerawanan longsor.

Kata Kunci: bidang gelincir, lapisan semi kedap, longsor, pearson

**LANDSLIDE RISK BASED ON SATURATED HYDRAULIC
CONDUCTIVITY IN GIRITENGGAH VILLAGE, BOROBUDUR DISTRICT,
MAGELANG REGENCY**

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ABSTRACT

A landslide is the movement of a relatively large volume of soil and/or rock down a slope. This study aims to determine the soil characteristics and the depth of the semi-impermeable layer, as well as the formation of the slip plane causing the landslide in Giritengah Village. Sample points were determined using purposive sampling based on areas that had experienced landslides in Onggosoro and Ngaglik hamlets, as well as areas that had not yet experienced landslides in Secang and Mijil hamlets. The parameters analyzed included soil texture, saturated hydraulic conductivity, porosity, aggregate stability, and soil organic matter. The research results indicate that all study sites show evidence of a semi-impermeable layer consisting of clay accumulation. A Pearson correlation test between the depth of the semi-impermeable layer and the slip plane yielded a significant result ($r = 0.944$). Linear regression analysis between the depth of the slip plane and the landslide volume yielded a coefficient of determination ($R^2 = 0.7102$). The results of Pearson correlation tests on several physical properties of the soil showed significant results for saturated hydraulic conductivity ($r = -0.979$), liquid limit ($r = 0.983$), and texture ($r = 0.904$). All study sites show indications of semi-impermeable layers, and certain physical properties of the soil such as saturated hydraulic conductivity, liquid limit, and clay fraction distribution can be used as parameters in determining landslide risk levels.

Keywords: landslide, pearson, semi-impermeable layer, slide plane